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INNOVATIONS IN THE DEVELOPMENT OF RURAL TERRITORIES

INNOVATIVE FACTORS AND CONDITIONS OF SUSTAINABLE DEVELOPMENT OF RURAL TERRITORIES

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This article considers the main features of sustainable development of rural territories, identifies the factors of innovative entrepreneurship, and assesses their influence on the condition of rural economy. Special attention is paid to the analysis of concepts, programmes, and projects in the field of rural territory development. The authors summarise conceptual and strategic approaches and actions of the Baltic region states in the field of sustainable development of rural territories. The article identifies objectives, common for the Baltic region, relating to sustainability of rural territories, including sustainable use of natural resource potential, diversification of production through support for non-agricultural activities and employment, application of innovations and efficient technologies, and manufacturing of environmentally friendly products. The analysis of the development of agricultural and innovations in the Baltic Sea regions serves as a basis for identifying the factors and conditions of supporting innovative entrepreneurship. Of special importance are the research, technological, and innovative potential of the territory, the availability of adequate innovative infrastructure, and the formation of innovative culture. The authors corroborate the idea of innovative entrepreneurship development in rural territories through the transformation of organisational and economic mechanism of management relating to the creation of institutional, infrastructure, and spatial conditions. Research and technological cooperation in the Baltic region is emphasised as a priority area.

Key words: sustainable development, rural areas, innovative entrepreneurship, agriculture, research and technological potential

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With increasing competition in agricultural and food market, sustainable development of rural territories is one of the major directions of the state agricultural policy. At the

moment, most developed and developing countries support the existing conceptual approaches in the framework of SARD[1]. Rational use of natural resources, diversification of production through support for non-agricultural activities and employment, the use of innovative and efficient technologies and the production of environmentally friendly products are considered top priorities [5].

For the countries of the Baltic Sea region these issues are becoming particularly relevant, seeing the resource constraints, including land, labour and investment scarcity. This relevance translates into concepts, programmes and projects, as well as other forms of collaboration and cooperation in the field of rural development.

In 2009 the European Union adopted the EU Strategy for the Baltic Sea Region based on the Action Plan, which considers the development of agriculture and sustainable development of rural territories one of the 15 priority areas [11, § 9]. Thus, measures taken by the EU Common Agricultural Policy, the European Innovation Partnership in the field of agriculture[2], the existing national programmes launched by the participating countries in this field are supplemented by projects and enhanced by "improving co-operation in matters where Member States and interested parties confirm their readiness. In some cases, the actions may require change in policy direction or (in rare cases) the national legislation of the Baltic Sea Region Member States" [11]. As indicated in the Action Plan, a special role belongs to Russia, due to the fact that many issues can be resolved only by means of constructive cooperation with international partners.

In addition, it is necessary to mention the Baltic Sea Region Programme 2007—2013 which provides funding for pilot projects in the field of sustainable territorial development [10].

In Russia, sustainable development of rural territories is implemented in the framework of the State Agricultural Policy and fulfils the provisions of the "Conception of Sustainable Development of Rural Territories for the period up to 2020"and the plan for its implementation, which was adopted in 2010, [1] The concept takes into account the Food Security Doctrine of the Russian Federation [2], provides for an increase in competitiveness of Russian agricultural products, as well as focuses on agricultural land capability and other natural resources used in agricultural production. Public policy objectives in the field of sustainable rural development for the period up to 2020 are as follows [1]:

1) creating favourable conditions for rural territories to fulfil their own and national functions aimed at territorial development;

2) providing a steady growth of the rural economy, improving the efficiency of agriculture and increasing the share of rural areas in the economy;

3) increasing employment and improving the quality of life of the rural population;

4) slowing down the process of depopulation of rural territories; increasing life expectancy;

[1] SARD — Sustainable Agriculture and Rural Development.

[2] European Innovation Partnerships (EIP) "Agricultural Productivity and Sustainability" [17]. One of the activities carried out in the frame of the flagship initiative "Innovation Union" (2010), the "Europe 2020" strategy [14].

5) reducing intra- and inter-regional differentiation in the level and quality of life of the rural population;

6) rationalizing the use of natural resources and preservation of the environment;

7) preserving and enhancing the cultural potential in the rural areas.

At present, the Federal Programme "Sustainable Development of Rural Territories in 2014—2017 and for the period until 2020" is being elaborated and discussed. This programme includes new areas of development and new tasks: the development of engineering and social infrastructure in rural areas (kindergartens, clubs, etc.), promoting competition in the agrarian sector (including all-Russia competition for the best produce and even sports competitions), giving grants to support local initiatives in rural communities, taking measures to improve the living conditions of people residing in rural areas. The programme also introduces a new approach to construction — a comprehensive and compact rural site development within the framework of pilot projects. The draft of the programme has already been approved by the Ministry of Economic Development of Russia, the Ministry of Regional Development of Russia, the Ministry of Education and Science of Russia and the Ministry of Sports of Russia [19].

The Sustainable Development Strategy for 2010—2015[3] developed in 2010 by the Council of the Baltic Sea States, with the participation of members of the "Baltic 21" Expert Group can also be considered as a joint effort made by the Baltic Sea Region countries to achieve sustainable development of rural areas [14, 15].The main goal of sustainable development of rural territories is improving the quality of life in rural areas, as well as strengthening links between urban and rural territories.

It is expected to address such issues as promoting better management of urban-rural interaction, supporting initiatives related to the integrated management of natural resources, elaborating strategies for the development of sustainable tourism[4].

Summarizing the conceptual and strategic approaches of the Baltic Sea Region countries, we can conclude that sustainable development of rural areas is achieved by sharing the following priorities:

- improving competitiveness of agriculture;
- diversifying rural economy and improving the quality of life of the rural population;
- focusing on the rational use of natural resources to protect the environment and the landscape.

From the economic point of view, one of the key priorities is the justification for the chosen direction of increasing the competitiveness of agriculture and the development of non-agricultural activities, with innovative entrepreneurship[5] being one of the decisive factors.

[3] Council of the Baltic Sea serves as a forum for intergovernmental cooperation; its efforts are aimed at addressing common regional issues in economic development, the environment, energy and culture.

[4] Project funding — 2,813,730 euros at the expense of the EU Programme for the Baltic Sea Region 2007—2013 [10; 15].

[5] In the framework of this research, the term "innovative entrepreneurship" is regarded in the broad sense — from the operation of innovative enterprises in the rural economy to science parks building.

Ensuring sustainability of rural territories through innovative business development proceeding from the content and form of activity[6] is achieved by moving from the mobilization (resource) type of economic growth towards the innovation one, which corresponds to the new vector of the regional development in both the Baltic Sea countries and regions of the Russian Federation, including the Kaliningrad Region. In this respect, food security of the Baltic region countries and the availability of quality food to the population become the issues of priority significance. However, these tasks are hard to achieve without building innovative entrepreneurship in agriculture and the agribusiness industry as a whole.

The comparative analysis of indicators characterizing the state of the rural economy of the Baltic Sea countries shows a rapid development of the regions that have been promoting innovation in recent years. This conclusion can be confirmed by the government spending and expenditures on R&D in the Baltic region countries, excluding Germany due to its enormous government R&D expenses (Fig. 1).

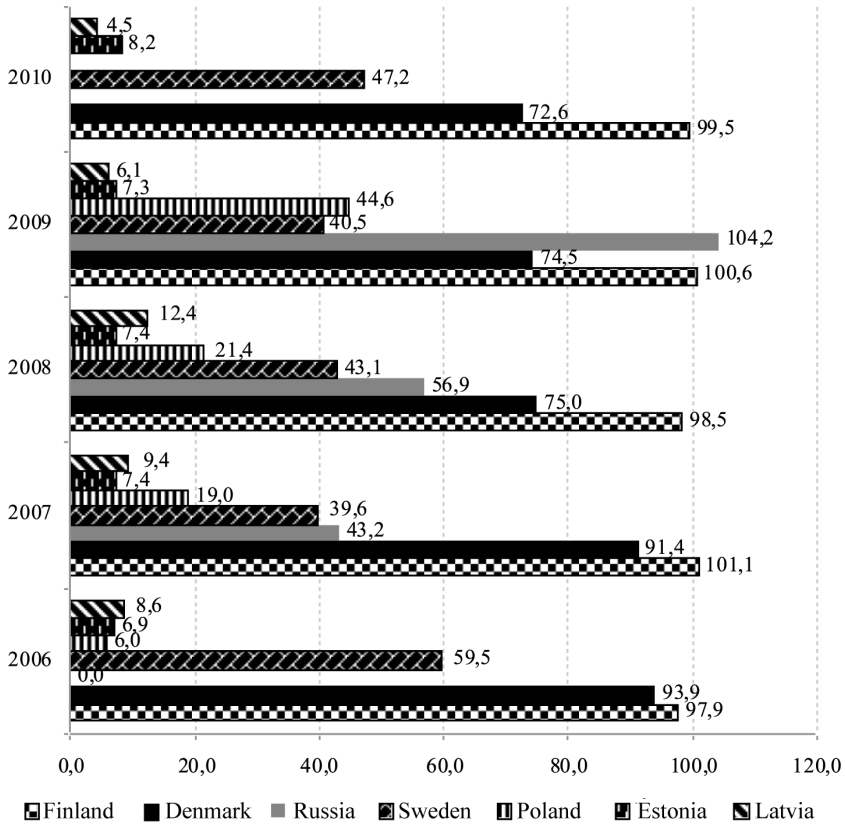

Fig. 1. Government budget R&D appropriations (GBAORD)[7] in agriculture, million euros[8] [18]

[6] See, eg, [6; 7; 16].

[7] GBAORD — Government Budget appropriations or outlays for R&D.

[8] According to Eurostat, R & D expenses in Lithuania in 2007—2009 were considerably lower and indicated as 0.0 million.

In Germany, budget appropriations are almost 5—10 times higher than in the other Baltic Region countries. In 2006—2010 this indicator increased from 397.2 to 770.7 million euros, maintaining this positive trend for the entire period. In 2009, a significant increase was observed in Russia — R&D appropriations increased 2.5 times (2009—104.2 million). According to Eurostat, the lowest indices were recorded in Latvia, Estonia and Poland.

Growth of innovation and R&D funding in agriculture led to qualitative changes in agricultural production, which is reflected in the change of crop and livestock production volumes, land salinity and crop yield indicators (Fig. 2).

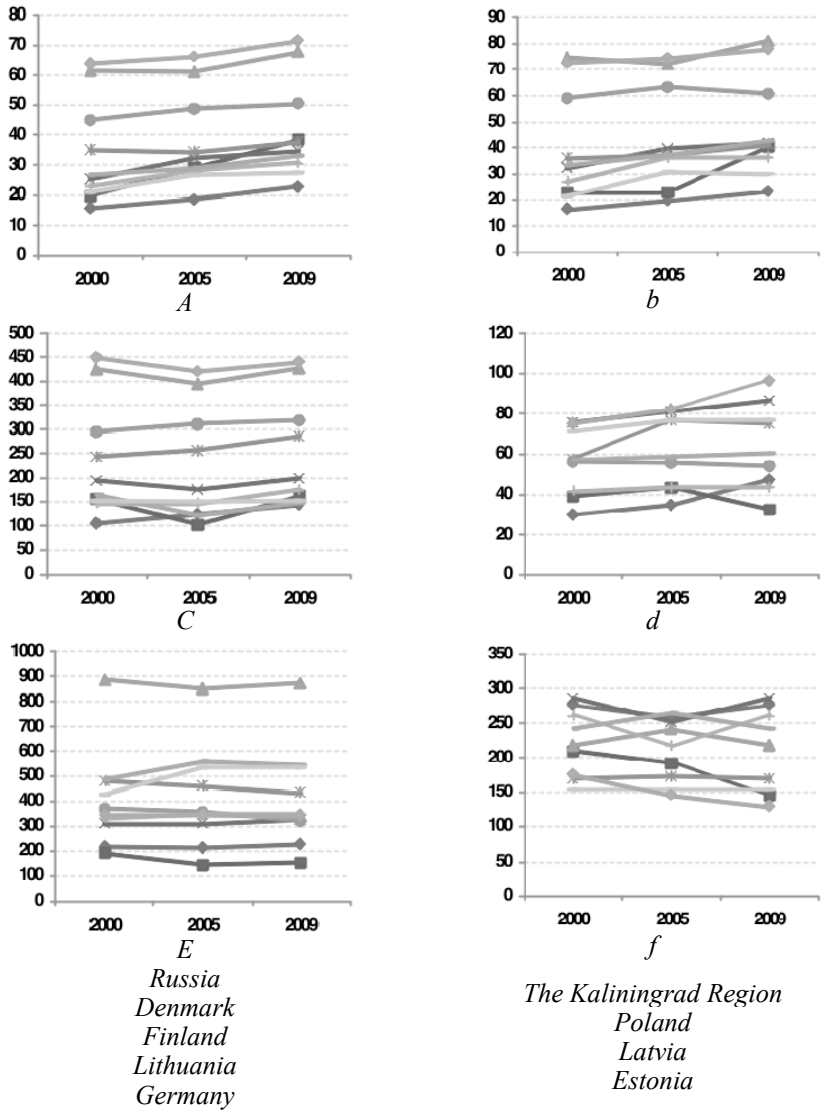

Fig. 2. Crop and livestock production in the Baltic Sea Region countries, 2000—2009 [8, 12, 13]:
a — cereals and beans, *b* — wheat, *c* — potatoes, *d* — meat (carcass weight) per capita, *e* — cow's milk per capita, *f* — eggs per capita

The data on crop and livestock production in the Baltic region showed supremacy of the countries that provided stable and active funding for research and development in agriculture within the reviewed period. Thus, by 2009, Germany and Denmark had taken leading positions among the Baltic Sea countries in yield of grain and leguminous plants, wheat, rye, potatoes, meat and cow's milk production per capita. Impressive crop yield in these countries was achieved due to the fact that there is a significant percentage of arable land in the total land area, as well as due to a better quality of arable land and use of mineral fertilizers (see Table).

Characteristics of agricultural land for the Baltic Sea Region, 2000—2009*

Country/region	The share of agricultural land in the total territory (%)		Mineral fertilizers per 1 hectare (in conversion to 100 % nutrients), kg	
	2000	2008	2000	2009
Russia	13	13	13	23
Kaliningrad region	42	43	42	122
Denmak	62	63	153	103
Poland	60	53	113	145
Finland	7	8	137	108
Sweden	8	8	105	69
Latvia	26	29	52	65
Lithuania	55	43	53	45
Estonia	23	19	42	69
Germany	49	49	232	181

* Compiled from the following sources: [8; 12; 13].

Of special interest is the position of the Kaliningrad region in the system of the Baltic region countries. In many parameters characterizing the development of agriculture, the western region of Russia has relatively average indicators compared to the BSR countries. At the same time, the yield of grain, leguminous crops and rye in the Kaliningrad region reached the level of the leading regions of Germany, Sweden and Denmark. When analysing the dynamics of the crop production in the Kaliningrad region during the reviewed period, it is necessary to emphasize positive changes in the quality of agricultural land. As it was noted the use of fertilizers has increased lately, and so has the area occupied by agricultural land (up to 43 % of the total land area). The less favourable situation is observed in livestock production of the Kaliningrad region. During 2005—2009, a negative trend in the production of meat and dairy produce per person was registered (over 10 years, the production of meat in carcass weight decreased by 17 %, cow's milk — by 20 %, eggs — by 31 %). However, such quality indicator as the milk yield per 1 cow, on the contrary, increased by 193.2 % in 2009, compared to 2000.

The experience and success of the Baltic region in ensuring sustainable agriculture are of great importance, taking into account the orientation and integration of the Kaliningrad region in a new Russia's innovation-driven development model. At the same time, various forms of interaction and cooperation between regions of the BSR aimed at fostering growth of innova-

tion and entrepreneurship become increasingly relevant, as well. These forms arise due to the following factors:

- scientific, technical and innovation potential of the territory, the expanding and transforming capacity of which ensures the development of innovations in agriculture as one of the sectors of the regional economy;
- the building up of innovation infrastructure which is the basis of the innovation system of the region. This type of infrastructure will help fulfil the tasks aimed at developing entrepreneurship — provision of government support, financial, economic, information, and expert assistance; certification and standardization; industrial and technological support, training and retraining of personnel, professional development and so on;
- the formation of an innovative culture, which is usually defined as a condition in which the society and/or the individual are willing and have the ability to accept and implement innovations [9].

Thus, innovative entrepreneurship in rural territories is not only related to the development, implementation and use of innovations, but also requires transformation of organizational and economic mechanism of management, as well as the creation of institutional, infrastructural and appropriate spatial conditions. In addition, there is a set of specific features characterizing innovation development in agriculture. These features should be taken into account when supporting innovative entrepreneurship in rural territories — the seasonal nature of activity, dependence of the production process on the objective biological laws, the presence of significant fixed assets, etc. — which, in turn, leads to a high demand for the implementation of comprehensive and systematic measures. For example, an increase in milk production is achieved not so much through the development of new breeds of cattle, but rather by introducing a comprehensive approach to the cattle feeding system, improving livestock management, raising productivity and efficiency of agricultural workers, improving milk cooling and storage operation etc. As the analytical data on the agri-food market show, "30% of the imported cattle die due to violation of the feeding and animal welfare technology" [3].

For the BSR countries, scientific and technological cooperation fostering innovations in agriculture, the development of innovative entrepreneurship and reaching ultimate sustainability of rural territories can become areas of mutual interest.

According to the evaluation of scientific and technical potential based on the authors' methodology [4], the Kaliningrad region, in contrast to the Baltic Sea Region is characterized by the development of human resources and agricultural facilities, whereas R&D component is not widely introduced[8].

[8] According to the developed methodology of comparative assessment of scientific and technical potential at the regional level, *the human resources component* characterizes the number of researchers and persons employed in the production of high-tech products, *the material and technical component* — the level of material and technical innovation, *the research and development component* — an active process of research and innovations; the *transforming capacity of scientific and technological potential* determines opportunities for the development and growth of systems (technical, technological, information, qualification, intellectual, organizational, management and other aspects of their functioning).

Taking into account the insufficient level of scientific, technological and innovative development of the Kaliningrad region and at the same time its strong position in terms of human resources, material and technical innovation, as well as its significant social and economic potential, further development of scientific and technological cooperation with the neighbouring countries, particularly the countries of the Baltic Sea regions, may become one of the promising directions for the future of the region. Mutually beneficial cooperation between the parties arises from the possibility to accumulate new knowledge, create innovative products, share expertise and introduce innovations in certain sectors of agriculture. Support for innovative entrepreneurship in rural territories is achieved by raising the competitiveness of agricultural producers and equipment suppliers, the producers and suppliers of spare parts and specialized services, as well as by raising the potential of research and education institutions, including the agri-science parks.

References

1. Koncepcija ustojchivogo razvitija sel'skih territorij Rossijskoj Federacii na period do 2020 goda [The concept of sustainable development in rural areas of the Russian Federation until 2020], *Rasporjazhenie Pravitel'stva Rossijskoj Federacii ot 30 nojabrja 2010 g. № 2136-r* [Order of the Government of the Russian Federation on November 30, 2010 № 2136-r].

2. *Ob utverzhdenii Doktriny prodovol'stvennoj bezopasnosti Rossijskoj Federacii* [On approval of the Doctrine of the food security of the Russian Federation]: Ukaz Prezidenta Rossijskoj Federacii № 120 ot 30 janvarja 2010 g. [Presidential Decree № 120 of January 30, 2010].

3. Vasilchenko, M. 2011, Uslovija formirovanija innovacionnogo potenciala rossijskogo zhivotnovodstva [Conditions for the formation of innovative potential of Russian livestock], *Regional'nye agrosistemy: jekonomika i sociologija* [Regional agro-ecosystems: Economics and Sociology], no. 2, available at: http://www.iagpran.ru/datas/users/a3164171c6eddb329945ad5d99989c1a.pdf (accessed 5 April 2012).

4. Voloshenko, K. Yu. 2011, Metodicheskie osobennosti sravnitel'noj ocenki innovacionnogo potenciala regionov Severo-zapada Rossii i stran Baltijskogo morja [Methodological features of the comparative evaluation of the innovative potential of regions in Northwest Russia and the Baltic Sea], *Issledovaniâ Baltijskogo regiona* [Baltic Region Studies], no. 1 (7), p. 16—33.

5. Glazovsky, N. F. 2005, *Ustojchivoe razvitie sel'skogo hozjajstva i sel'skih territorij. Zarubezhnyj opyt i problemy Rossii* [Sustainable agriculture and rural areas. International experience and problems of Russia]. In: Glazovsky, N. F., Gordeev, N. F., Sdasyuk, G. V. (eds.), Moscow, Tovariwestvo nauchnyh izdanij KMK, 615 p.

6. Zabelin, P. V., Novikov, Ju. Ju. 2000, Innovacionnoe predprinimatel'stvo v Rossii [Innovative entrepreneurship in Russia], *Rossijskoe predprinimatel'stvo* [The Russian business], no. 9 (9), p. 3—6.

7. Medynsky, V. G., Skamay, L. G. (eds.). 2002, *Innovacionnoe predprinimatel'stvo* [Innovative entrepreneurship], Moscow, JuNITI, 589 p.

8. *Kaliningradskaja oblast' v cifrah, 2012: Kratkij statisticheskij sbornik* [Kaliningrad Region in Figures, 2012: Short Statistical Book], 2012, Kaliningrad, Kaliningradstat, 183 p.

9. Nikolaev, A. I. 2001, Innovacionnoe razvitie i innovacionnaja kul'tura [Innovative development and innovation culture], *Nauka i naukoznanie* [Science and naukoznanie], no. 2, p. 54—65.

10. *Programma regiona Baltijskogo morja 2007—2013. V ramkah celi Evropejskogo Sojuza po territorial'nomu sotrudnichestvu i Evropejskogo instrumenta sosedstva i partnerstva* [Baltic Sea Region Programme 2007—2013. Within the objectives of the European Union on territorial cooperation and the European Neighbourhood and Partnership Instrument], available at: http://eu.baltic.net/redaktion/ download.php?id=1107&type=file (accessed 2 June 2012).

11. *Commission Staff Working Paper. Appendix to the report of the Commission, addressed the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions concerning the European Union Strategy for the Baltic Sea*, 2009, Action Plan, Brussels, SEC,712/2, available at: http://eeas.europa.eu/delegations/russia/documents/eu_russia/action_plan_ru.pdf (accessed 2 June 2012).

12. *Rossija i strany — chleny Evropejskogo sojuza. 2011*: Stat. sb [Russia and the countries — members of the European Union. 2011: Statistical Yearbook], 2011, Moscow, Rosstat, available at: http://www.gks.ru/wps/wcm/connect/rosstat/rosstatsite/main/publishing/catalog/statisticCollections/doc_1137677636609 (accessed 20 April 2012).

13. *Rossija i strany mira. 2010:* Stat. sb [Russia and the world. 2010: Statistical Yearbook], 2010, Moscow, Rosstat, available at: http://www.gks.ru/wps/wcm/connect/rosstat/rosstatsite/main/publishing/catalog/statisticCollections/doc_113982 1848594 (accessed 20 April 2012)

14. *Spravochnik po voprosam nauchno-tehnologicheskogo sotrudnichestva Evropejskogo Sojuza, stran-chlenov ES i Rossijskoj Federacii* [Handbook for Scientific and Technological Cooperation of the European Union, EU Member States and the Russian Federation], Predstavitel'stvo Evropejskogo Sojuza v Rossii [Delegation of the European Union to Russia], 2012, Moscow, available at: http://eeas.europa.eu/delegations/russia/d...ium_2012_ru.pdf (accessed 20 April 2012).

15. *Strategija ustojchivogo razvitija Soveta gosudarstv Baltijskogo morja 2010—2015* [Strategy for Sustainable Development Council of the Baltic Sea 2010—2015], available at: http://www.cbss.org/component/option,com_attachments/id,1096/task,download/ (accessed 13 May 2012).

16. Tatarkin, A.I. 2002, *Kljuchi k mirovomu rynku: innovacionnoe predprinimatel'stvo i ego vozmozhnosti* [Keys to the world market: innovative entrepreneurship and its potential], Moscow, Jekonomika, 231 p.

17. *Communication from the Commission to the European Parliament and the Council on the European Innovation Partnership «Agricultural Productivity and Sustainability»*, 2012, Brussels, 29.2.2012. COM(2012) 79, available at: http://ec.europa.eu/agriculture/eip/pdf/com2012—79_en.pdf (accessed 13 April 2012).

18. *Science*, *technology and innovation in Europe*, 2012, available at: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-GN-12-001/EN/KS-GN-12-001-EN.PDF (accessed 13 April 2012).

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